REMOVAL OF CHROMIUM (VI) FROM AQUEOUS SOLUTIONS USING SILYLATED MCM-41

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ABSTRACT

REMOVAL OF CHROMIUM (VI) FROM AQUEOUS SOLUTIONS USING SILYLATED MCM-41

Heavy metal pollution has become one of the environmental problems which cause several diseases either to human, animal or plant. In this study, siliceous MCM-41 was modified by silylation using trimethylchlorosilane (TMCS). It was also investigated as an alternative low cost absorbent for the removal of hexavalent chromium from aqueous solution. The contact time required to obtained the maximum removal of hexavalent chromium was 90 minutes at the concentration of 20 mg/L. The percentage removal increased with the decreasing of pH and increasing of adsorbent dosage. However, the percentage removal is inversely proportional with the increasing of temperature which showed that this reaction is a exothermic reaction. The data on hexavalent chromium fit well on Langmuir compared to Freundlich. This study indicates that silylated MCM-41 has the ability to remove hexavalent chromium from aqueous solution.